

In the Claims

The claims are not being amended, but are reproduced here for Examiner's convenience:

23. A method of obtaining a user's identity by voice, comprising:

receiving a set of at least one known grammar and a set of at least one known voiceprint corresponding to a plurality of utterances from each of a first plurality of
5 users;

for each of the first plurality of users, associating the set of at least one known grammar and the set of at least one known voiceprint with an identifier of said user;

10 receiving at least one utterance from a subject user;

performing a voice recognition on at least one of the at least one utterance received from the subject user, said voice recognition being different from extracting a grammar from a first at least one of the at least one utterance
15 received from the subject user;

responsive to the voice recognition technique, selecting from the first plurality of users a second plurality of users, smaller than the first plurality of

users by a factor of at least ten, for which the first
20 voice recognition most closely matches at least one
selected from the set of at least one grammar and the set
of at least one voiceprint associated with the identifiers
of the second plurality of users;

from the second plurality of users, selecting the user
25 for which a grammar of the first at least one of the at
least one utterance received from the subject user most
closely matches at least one of the set of at least one
grammar associated with the identifiers of the second
plurality of users;

30 verifying a voiceprint of at least one of the at least
one utterance has at least a similarity to the set of at
least one voiceprint of the selected user; and

responsive to the verifying step, providing the
identifier of the selected user as the identifier of the
35 subject user.

24. The method of claim 23 wherein the voice
recognition comprises extracting a grammar from a second at
least one of the at least one utterance received from the
subject user, the second at least one of the at least one
5 utterance having at least one difference from the first at
least one of the at least one utterance.

25. The method of claim 23 wherein the voice recognition technique comprises speaker independent voice recognition.

26. The method of claim 23 wherein the first at least one of the at least one utterance comprises a password.

27. The method of claim 23 wherein a number of the second plurality of users corresponds to a constant.

28. The method of claim 23 wherein the second plurality of users corresponds to users for which the voice recognition technique yields a confidence level exceeding a threshold.

29. The method of claim 23 wherein at least one of the at least one utterance may be other than a real word.

30. A system for obtaining a user's identity by voice, comprising:

storage for storing and providing at an output a set of at least one known grammar and a set of at least one known voiceprint corresponding to a plurality of utterances from each of a first plurality of users, for each of the first plurality of users, the set of at least one known grammar and the set of at least one known voiceprint being associated with an identifier of said user;

10 a first recognizer having an input operatively coupled
for receiving at least one utterance from a subject user,
the first recognizer for performing a voice recognition on
at least one of the at least one utterance received from
the subject user, said voice recognition being different
15 from extracting a grammar from a first at least one of the
at least one utterance received from the subject user, the
first recognizer additionally for, responsive to the voice
recognition technique, selecting from the first plurality
of users a second plurality of users, smaller than the
20 first plurality of users by a factor of at least ten, for
which the first voice recognition most closely matches at
least one selected from the set of at least one grammar and
the set of at least one voiceprint associated with the
identifiers of the second plurality of users received at a
25 second input coupled to the storage output, and for
providing at an output identifiers of the second plurality
of users;

a second recognizer having a first input for receiving
the identifiers of the second plurality of users, and a
30 second input for receiving at least one of the at least one
utterance from the subject user, the second recognizer for
extracting a grammar from the at least one of the at least
one utterance received at the second second voice

recognizer input, and for selecting from the second
35 plurality of users the user for which the grammar extracted
most closely matches at least one of the set of at least
one grammar associated with the identifiers of the second
plurality of users received at a third input coupled to the
storage output, and for providing an identifier of the
40 selected user at an output;

a verifier having a first input coupled to the second
recognizer output, the verifier for obtaining a voiceprint
of at least one of the at least one utterance received at a
second input, and for verifying a voiceprint of at least
45 one of the at least one utterance has at least a similarity
to the set of at least one voiceprint of the selected user
received at a third input coupled to the storage output;
and responsive to said verification, providing at an output
the identifier of the selected user as the identifier of
50 the subject user.

31. The system of claim 30 wherein the first
recognizer performs the voice recognition by extracting a
grammar from a second at least one of the at least one
utterance received from the subject user, the second at
5 least one of the at least one utterance having at least one

difference from the first at least one of the at least one utterance.

32. The system of claim 30 wherein the first recognizer performs the voice recognition using speaker independent voice recognition.

33. The system of claim 30 wherein the first at least one of the at least one utterance comprises a password.

34. The system of claim 30 wherein a number of the second plurality of users corresponds to a constant.

35. The system of claim 30 wherein the second plurality of users corresponds to users for which the voice recognition performed by the first recognizer yields a confidence level exceeding a threshold.

36. The system of claim 30 wherein at least one of the at least one utterance may be other than a real word.

37. A computer program product comprising a computer useable medium having computer readable program code embodied therein for obtaining a user's identity by voice, the computer program product comprising computer readable
5 program code devices configured to cause a computer to:

receive a set of at least one known grammar and a set of at least one known voiceprint corresponding to a

plurality of utterances from each of a first plurality of users;

10 for each of the first plurality of users, associate the set of at least one known grammar and the set of at least one known voiceprint with an identifier of said user;

 receive at least one utterance from a subject user;

 perform a voice recognition on at least one of the at
15 least one utterance received from the subject user, said voice recognition being different from extracting a grammar from a first at least one of the at least one utterance received from the subject user;

 responsive to the voice recognition technique, select
20 from the first plurality of users a second plurality of users, smaller than the first plurality of users by a factor of at least ten, for which the first voice recognition most closely matches at least one selected from the set of at least one grammar and the set of at least one
25 voiceprint associated with the identifiers of the second plurality of users;

 from the second plurality of users, select the user for which a grammar of the first at least one of the at least one utterance received from the subject user most
30 closely matches at least one of the set of at least one

grammar associated with the identifiers of the second plurality of users;

verify a voiceprint of at least one of the at least one utterance has at least a similarity to the set of at
35 least one voiceprint of the selected user; and

responsive to the computer readable program code devices configured to cause the computer to verify, provide the identifier of the selected user as the identifier of the subject user.

38. The computer program product of claim 37 wherein the computer readable program code devices configured to cause the computer to perform voice recognition comprise computer readable program code devices configured to cause
5 the computer to extract a grammar from a second at least one of the at least one utterance received from the subject user, the second at least one of the at least one utterance having at least one difference from the first at least one of the at least one utterance.

39. The computer program product of claim 37 wherein the computer readable program code devices configured to cause the computer to perform voice recognition comprise computer readable program code devices configured to cause

5 the computer to perform speaker independent voice recognition.

40. The computer program product of claim 37 wherein the first at least one of the at least one utterance comprises a password.

41. The computer program product of claim 37 wherein a number of the second plurality of users corresponds to a constant.

42. The computer program product of claim 37 wherein the second plurality of users corresponds to users for which the voice recognition technique yields a confidence level exceeding a threshold.

43. The computer program product of claim 37 wherein at least one of the at least one utterance may be other than a real word.